WHAT IS CLAIMED IS:

1. A process for treating RPET flakes, comprising:

providing a quantity of RPET flakes;

comminuting the RPET flakes, to prepare RPET particles having an average mean particle size less than about 300 microns; and

treating the RPET particles utilizing a low energy process selected from the group consisting of simultaneously melting and mixing the RPET particles by means of a low energy melting device to prepare an RPET melt, and thermally treating the RPET particles to dry or crystallize the RPET particles.

2. The process for treating RPET flakes according to Claim 1, wherein the RPET flakes comprise chunks, spheres, pellets, or mixtures thereof.

3. The process for treating RPET flakes according to Claim 1, wherein the RPET flakes have particle sizes from about ¼ inch to about ½ inch.

4. The process for treating RPET flakes according to Claim 1, wherein the simultaneous melting and mixing step is accomplished using a low energy melting device selected from the group consisting of a 2-roll mill, a heated casting roll, and a rotating mandrel.

5. The process for treating RPET flakes according to Claim 1, wherein the thermal treating step is accomplished by heating the RPET particles to a temperature below the melt temperature of polyethylene terephthalate.

6. The process for treating RPET flakes according to Claim 5, wherein the RPET particles are heated by passing a gas over or through the bed of RPET particles.

7. The process for treating RPET flakes according to Claim 6, wherein the gas comprises air, nitrogen, argon, or mixtures thereof.

8. A process for treating RPET flakes, comprising:

providing a quantity of RPET flakes, comprising chunks, spheres, pellets, or mixtures thereof, having particle sizes from about ¼ inch to about ½ inch;

comminuting the RPET flakes, to prepare RPET particles having an average mean particle size less than about 300 microns; and

treating the RPET particles utilizing a low energy process selected from the group consisting of simultaneously melting and mixing the RPET particles by means of a low energy melting device selected from the group consisting of a 2-roll mill, a heated casting roll, and a rotating mandrel, to prepare an RPET melt, and thermally treating the RPET particles by heating the RPET particles to a temperature below the melt temperature of polyethylene terephthalate by passing a gas comprising air, nitrogen, argon, or mixtures thereof over or through the bed of RPET particles, to dry or crystallize the RPET particles.